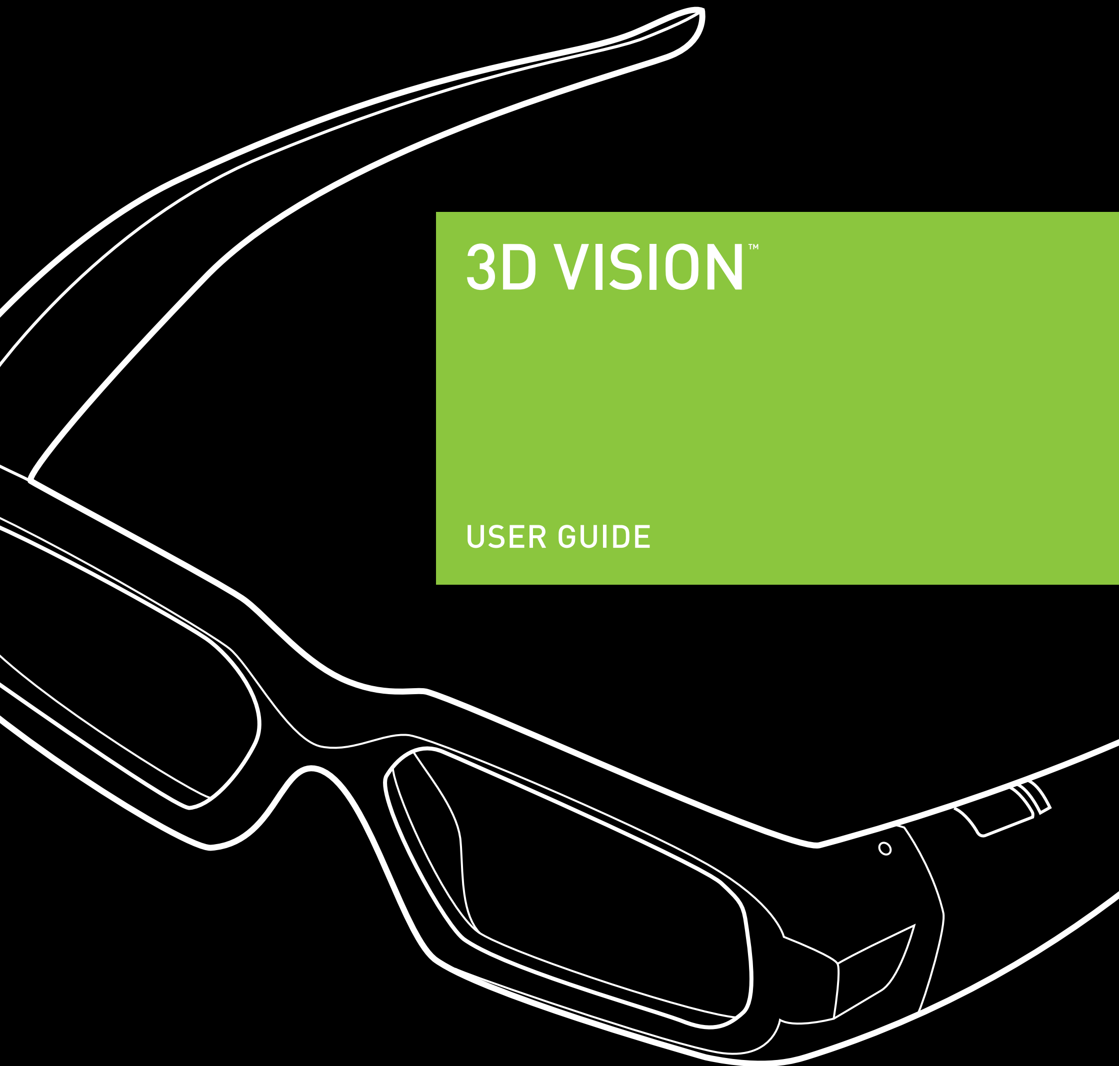


3D VISION™

USER GUIDE

NVIDIA®

TABLE OF CONTENTS

Contents

01 WELCOME

Congratulations on your purchase of NVIDIA® 3D Vision, a fully immersive stereoscopic 3D experience for your PC. A combination of high-tech wireless glasses and advanced software, the 3D Vision kit transforms hundreds of PC games and digital photographs into an eye popping, interactive experience. Just slip on the stylish glasses, and pair them with a GeForce GPU and 3D Vision-Ready display to see characters and environments come to life on the screen. Give your eyes something to talk about with 3D Vision.

3D Vision automatically transforms hundreds of PC games into full stereoscopic 3D. Visit www.nvidia.com/3dvision for a full list of supported games and applications.

Note: It is important to register your NVIDIA product in order to receive NVIDIA Customer Care online and phone support. You can register at www.nvidia.com/3dvision/register using the serial number found on the Welcome card in your package.

About this Guide

This guide discusses the installation and operation of the NVIDIA 3D Vision hardware and software. There is a full section containing usage tips and troubleshooting guidelines.

Please read through the safety precautions and recommended viewing guidelines given on pages 3 and 4 under *Safety Requirements*.

01

System Requirements

Before you begin, please review the following minimum system requirements to ensure your PC meets the hardware requirements necessary to enjoy the 3D Vision experience.

For a full list of System Requirements including supported NVIDIA GPUs, 3D Vision-Ready LCDs, 3D Vision notebooks and other required components, please visit www.nvidia.com/get3D and select **System Requirements.**

Safety Requirements

Do not wear the wireless glasses in any situations that require unimpaired visual perception. Do not use the glasses as sunglasses.

Under normal conditions, stereoscopic 3D viewing is safe for any duration that you would normally view your display. However, some people may experience discomfort. To minimise the potential for experiencing visual problems or any adverse symptoms:

- Take the stereoscopic 3D medical test to verify your ability so see stereoscopic 3D images.
- Maintain a distance no closer than 2 to 2.5 feet away from the display. Viewing from too close a distance can strain your eyes.
- Take regular breaks, at least 5 minutes after every hour of stereoscopic 3D viewing.
- Start with the depth at the default of 15%. As you get more comfortable viewing stereoscopic 3D, you can increase the depth amount.
- If you experience any of the following symptoms:
  - nausea, dizziness, or queasiness,
  - headache, or eyestrain,
  - blurry vision,
  - double vision that lasts longer than a few seconds,

Do not engage in any potentially hazardous activity (for example, driving a vehicle) until your symptoms have completely gone away.

If symptoms persist, discontinue use and do not resume stereoscopic 3D viewing without discussing your symptoms with a doctor.

Epilepsy

!

WARNING!
IF YOU OR ANY MEMBER OF YOUR FAMILY HAS A HISTORY OF EPILEPSY, CONSULT A DOCTOR BEFORE USING COMPUTER GAME PRODUCTS.

A small percentage of the population may experience epileptic seizures when viewing certain types of TV images or video games that contain flashing patterns of light.

The following people should consult a doctor before viewing in stereoscopic 3D:

- Children under 5 years of age
- Anyone with a history of epilepsy, or who has a family member with a history of epilepsy
- Anyone who has ever experienced epileptic seizures or sensory disturbances triggered by flashing light effects.

!

WARNING!
SOME LIGHT PATTERNS MAY INDUCE SEIZURES IN PERSONS WITH NO PRIOR HISTORY OF EPILEPSY. DISCONTINUE STEREOSCOPIC 3D USE IF YOU EXPERIENCE ANY OF THE FOLLOWING SYMPTOMS WHILE VIEWING STEREOSCOPIC 3D IMAGES.

- Involuntary movements, eye or muscle twitching
- Muscle cramps
- Nausea, dizziness, or queasiness
- Convulsions
- Disorientation, confusion, or loss of awareness of your surroundings

Do not engage in any potentially hazardous activity (for example, driving a vehicle) until your symptoms have completely gone away.

Do not resume stereoscopic 3D viewing without discussing the symptoms with your doctor.

01

02 UNPACKING EQUIPMENT

Prior to unpacking your new NVIDIA 3D Vision box, it is a good idea to make sure you meet all the system requirements (page 2) for a smooth installation.

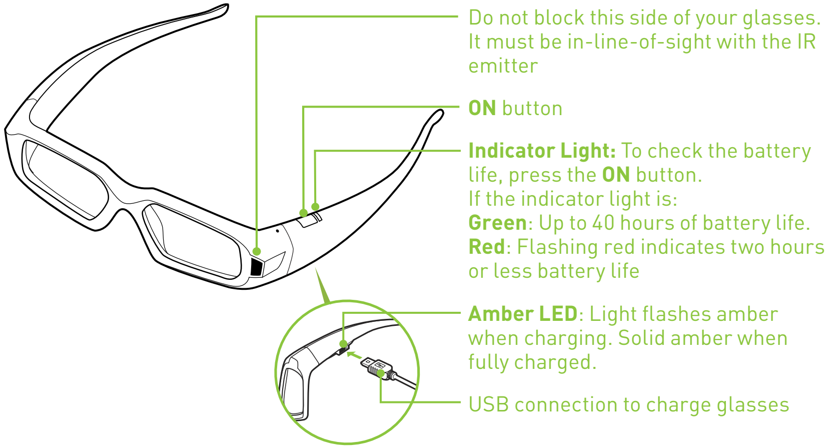
Be sure to inspect each piece of equipment shipped in the packing box. If anything is missing or damaged, contact your reseller.

Wireless Glasses

Charging the Glasses

Note: We recommended that you fully charge your glasses now since it will take approximately three hours to complete. The wireless glasses hold approximately 40-hours of gaming per full charge.

The wireless glasses require periodic charging. To charge the glasses, use one of the USB cables that came with the kit. Plug one end into the glasses and the other to any USB port on your system. You can also use a USB wall adapter to charge your glasses. Charge your glasses until the Amber charge light goes out. You can use wireless glasses while they are being charged.



If you are charging the wireless glasses by connecting them to your PC using a USB cable, make sure your PC does not go into power save mode. When your PC goes into power save mode, the wireless glasses are no longer charging. To fix this, disable any power saving options on your PC under the Windows Control Panel. Alternatively, you can use a USB wall charging device to charge the glasses directly from your wall power outlet without connecting to the PC. You can use your glasses while they are charging.

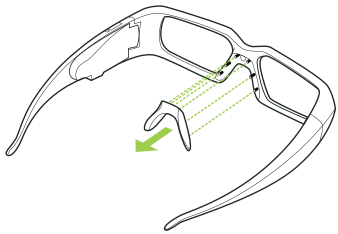
Using the Glasses

It is a good idea to keep the glasses in the protective pouch when you are not using them. When wearing your glasses, you must be in-line-of-sight with the IR emitter. Press the **ON** button to turn the glasses on. The glasses turn off automatically when there is no activity.

> ! **Caution:** The wireless glasses are not prescription eye wear, sunglasses, nor a protective goggle. Do not use the glasses for any general eye wear purposes (e.g., driving, reading, protection from sunlight or ultraviolet light, etc.) as such use may result in injury.

Changing the Nose Piece

Your wireless glasses come with three interchangeable nose pieces to give you a comfortable fit. Simply pull out the current nose piece and insert the one that fits you best.



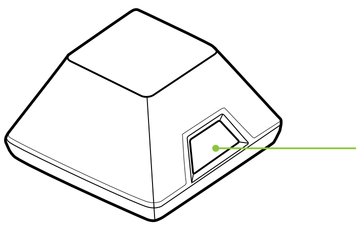
USB IR Emitter

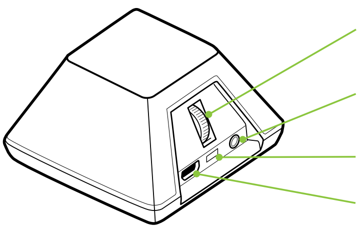
(included with the 3D Vision glasses kit)

3D Vision products such as desktop monitors, projectors, and some 3D Vision notebooks use the USB IR emitter to communicate to the 3D Vision glasses. Please view the diagrams below for information on how to use your USB IR emitter.

> **Note:** Some 3D Vision Notebook have a built-in 3D Vision IR emitter. Please check with your notebook manufacturer to determine if you need the USB IR emitter.

There is a thumbwheel on the back of the emitter that can be used to increase/decrease depth in a game.





The effective range of the IR Emitter is 15 feet.

02

!

WARNING: Infrared Device Safety

CLASS 1 LED PRODUCT
This product includes an Infrared light-emitting diodes for transmitting signals from the controller to the glasses. Although this invisible beam is not considered harmful, and complies with EN60825-1 (IEC60825-1), we recommend the following precaution: when the Infrared device is transmitting:

- Do not stare into the emitter
- Do not view directly with optical instruments

No parts in the device may be serviced by the user.

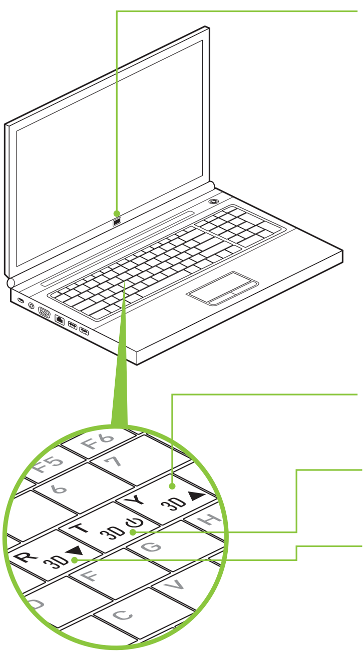
Built-in IR Emitters

3D Vision products with Built-In IR Emitters do not require the USB IR emitter and will communicate directly with the 3D Vision glasses. Please view the diagrams below for now to use 3D Vision you're your product.

3D Vision Notebooks

Most 3D Vision Notebooks will have special function hot keys on the laptop for controlling 3D Vision, just like the hot keys for controlling brightness or audio volume. These hot keys. Please check with your manufacturer to ensure your laptop has the 3D Vision hot keys pictured below.

> **Note:** The effective range of the notebook Built-in IR Emitter is 10 feet.



02

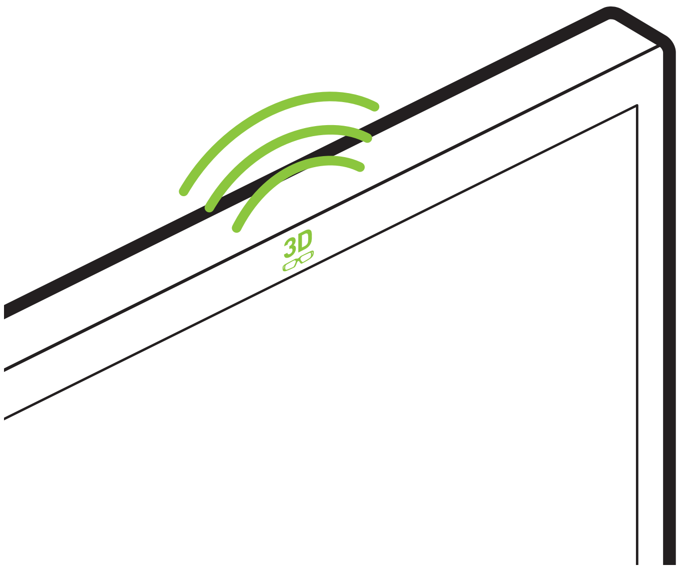
3D Vision LCD monitors and All-In-One PCs

Most 3D Vision LCD monitors and All-in-One PCs will not have keys for controlling 3D Vision when playing 3D content. You can control 3D using the following keyboard shortcuts:

> 3D ON/OFF – CTRL-T

> Increase stereoscopic 3D depth – CTRL-F4

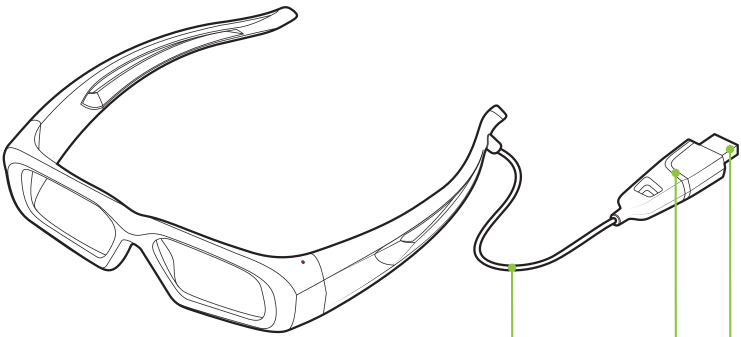
> Decrease stereoscopic 3D depth – CTRL-F3



Note: The effective range of the Desktop LCD Built-in IR Emitter is 15 feet. The effective range of the All-In-One PC Built-in IR emitter is 10 feet.

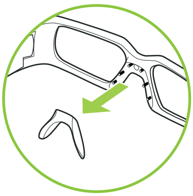
Wired Glasses

3D Vision Wired Glasses are designed to work with 3D Vision-Ready displays. The Wired Glasses do not use the USB IR Emitter that comes with 3D Vision Wireless Glasses kits and 3D Vision Notebooks.



USB Cable

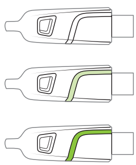
This cable is permanently attached to the Wired Glasses and is not a removable cable. You can use USB extender cables to increase the length of this cable.



Nose piece

Replace with one of three sizes for a comfortable fit.

Indicator Lights



→ No driver installed

→ 3D Off; driver installed properly

→ 3D On

USB Plug

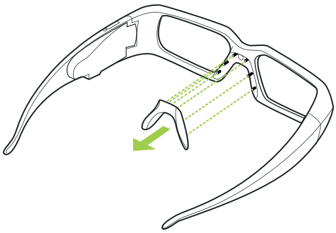
Ensure the 3D Vision Controller Driver is installed before plugging in the Wired Glasses.

Note: You can toggle 3D On/Off and adjust 3D Depth using 3D Vision's keyboard shortcuts. Please consult the User Guide available online at www.nvidia.com/Get3D for more information.

02

Changing the Nose Pieces

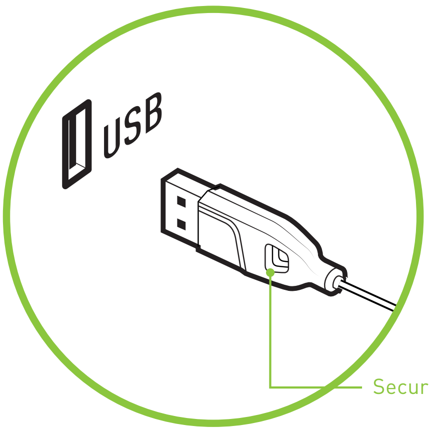
Your wireless glasses come with three interchangeable nose pieces to give you a comfortable fit. Simply pull out the current nose piece and insert the one that fits you best.



Pull the nose piece out as shown and snap another nose piece in place.

Securing Wired Glasses

3D Vision Wired Glasses can also be secured to be a PC using the notch in the USB plug and notebook security devices. NVIDIA has tested Kensington notebook security devices to attach the glasses to a PC tower or table.



Security device cut out location

03
INSTALLATION AND SETUP

Installing the hardware and software to your computer system is pretty straightforward.

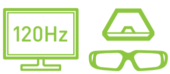
Note: Before beginning the installation, make sure your wireless glasses are fully charged. See *Charging the Glasses* on page 6.

Download the Latest Software

Required Action Before You Start the Installation



If your notebook with built-in 3D Vision IR Emitter includes NVIDIA 3D Vision glasses, drivers are already installed on your notebook 120Hz. Please launch the "Set up 3D Vision" shortcut on your Windows desktop to set up 3D the first time.



If your LCD monitor includes NVIDIA 3D Vision glasses in the box or you want to ensure you have the latest drivers for your LCD monitor, visit www.nvidia.com/3DUpdate to download the latest drivers.



If you purchase Wired Glasses kit, you must download the driver CD from www.nvidia.com/3DUpdate.

03

Installation

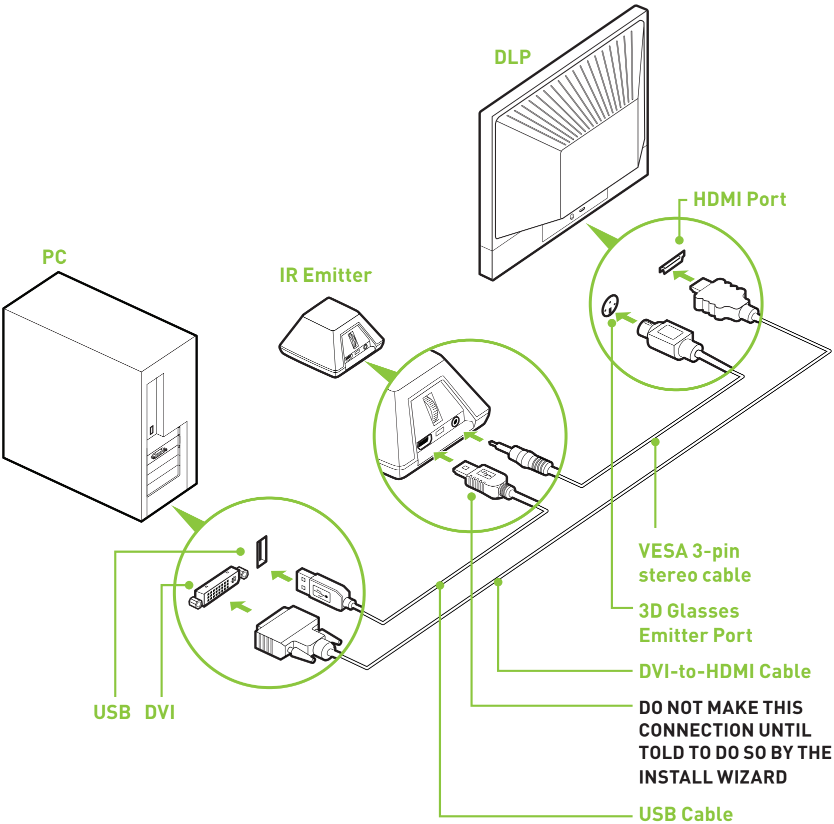
Connecting the Display
(skip this step if you are using a 3D Vision notebook)

1. Connect your 3D Vision Ready display to your NVIDIA graphics card. The display you connect must be a 3D Vision Ready LCD or analogue CRT display. For LCDs use the dual-link DVI-to-DVI cable supplied with the display.

> **Note:** Connect ONLY the display now. The driver and software must be installed prior to connecting the USB IR Emitter.

See the following pages for connection diagrams.

DLP HDTV Connection Diagram

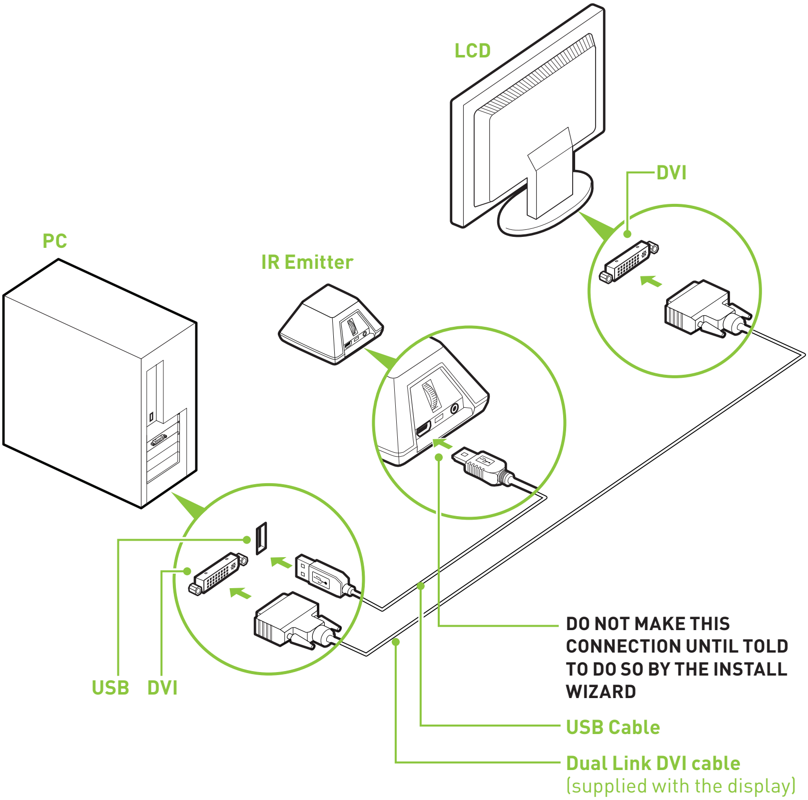


Note: Check your DLP's user manual to see if there is a specific HDMI port used to connect a PC to your HDTV. In addition, change the input mode on the TV's menu to be **PC** or **Computer** to ensure the TV can process the video signal correctly.

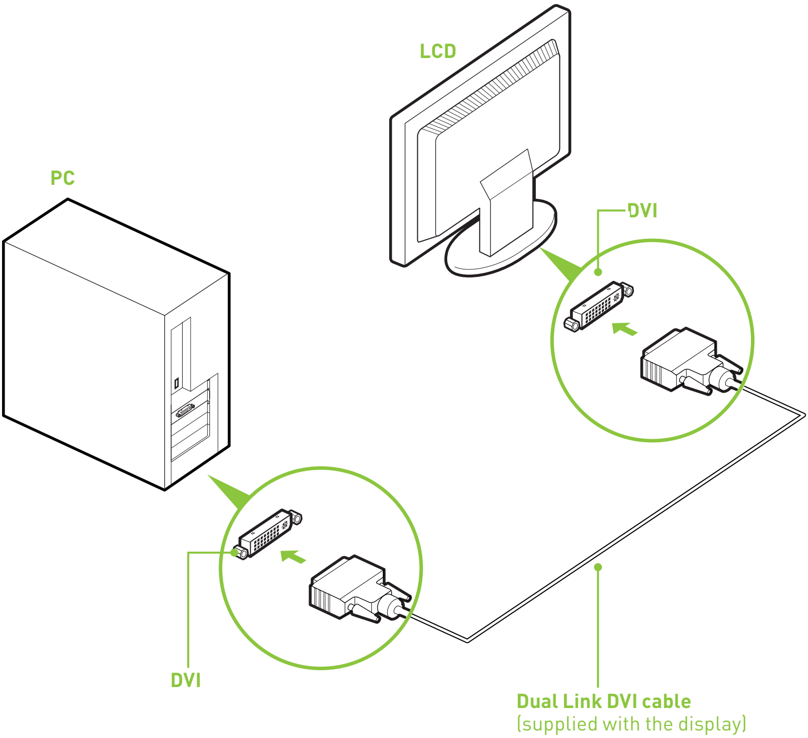
Note: The DVI-to-HDMI Cable is not included with your 3D Vision kit. Please obtain one from a computer or electronics store.

03

120 Hz LCD Connection Diagram for USB IR Emitter



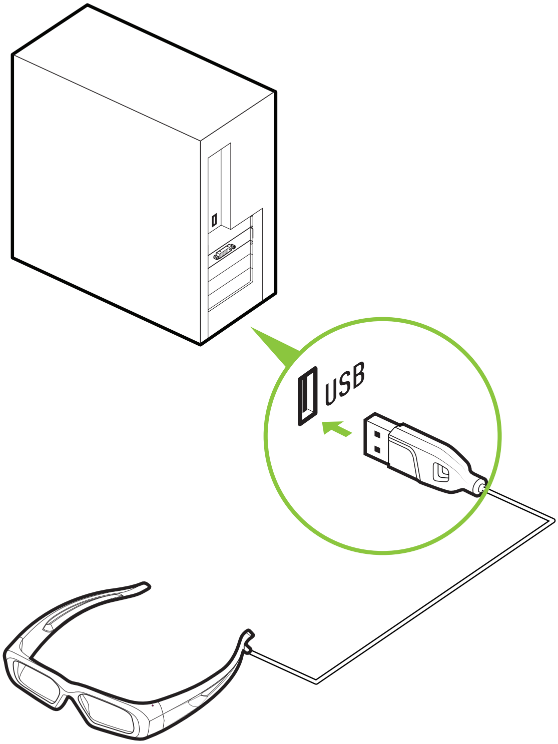
120 Hz LCD Connection Diagram for LCD Monitors with Built in IR Emitters



Note: LCD Monitors with Built in IR Emitters do not require additional USB connectors from the PC to the monitor.

03

Wired Glasses Connection Diagram



Removing Current Display Drivers

Before you begin the installation, you must remove the graphics driver currently on your computer.

> ! **STOP:** If you purchased a PC with a built-in 3D Vision IR Emitter (e.g. notebook) then 3D Vision drivers should already be installed on your PC. Do not uninstall the drivers. Skip steps 2-7 and proceed to step 8.

2. Go to **Start › Control Panel › Programs and Features**.
   If you have an NVIDIA graphics card, double click **NVIDIA Drivers**.*
   a) Select the option **Remove only the following**.
   b) Select **NVIDIA Display Driver**
   c) Click **Remove**
   d) Restart your computer

   * If you are replacing a non NVIDIA graphics card, be sure to remove the graphics driver and power down your system to replace the card before continuing. Replace the card with a supported NVIDIA GeForce card.

Installing the Drivers and Software

3. **Insert the 3D Vision Software and Manual CD.**
   The *Software Installation* screen is displayed.

4. **Select Install GeForce Graphics driver.**
   The InstallShield Wizard begins to guide you through the installation.

5. **Select Yes, I want to restart my computer now when prompted.**
   When your system reboots, the 3D Vision Software Installation automatically restarts to continue the install. (If for any reason the software does not restart, go to **My Computer** and double click on the CD icon to relaunch the installer.)

6. **Select Next to install the 3D Vision driver.**
   If you would like to have a shortcut to the NVIDIA Stereoscopic 3D Viewer installed on your desktop, check the box.

7. **Select Next to continue.**
   If you receive the warning box below, select **Install** to continue.

8. **Select Finish to complete the installation.**
   After completing the driver installation, the 3D Vision Setup Wizard begins when the InstallShield completes. 3D Vision Notebook users should click on the desktop shortcut **Setup NVIDIA 3D Vision** to begin the Setup Wizard. The Setup Wizard takes you through installing the IR emitter, setting up your display, and configuring the wireless glasses.

9. **Complete the 3D Vision Setup Wizard.**
   Note the Status Bar across the top of each screen. This tells you where you are in the Setup.

03

Congratulations!
Setup and configuration are complete and 3D Vision is enabled and ready for you to begin the most immersive gaming experience for the PC.

Note: 3D Vision has been enabled with the default depth amount of 15%. NVIDIA recommends all new users begin with the default depth amount until you are comfortable. You can increase the depth over time as your eyes grow accustomed to stereoscopic 3D viewing. The depth amount can be changed from the NVIDIA Control Panel or by adjusting the wheel on the back of the IR emitter.

To view a full list of compatible games, please visit www.nvidia.com/3dvision.

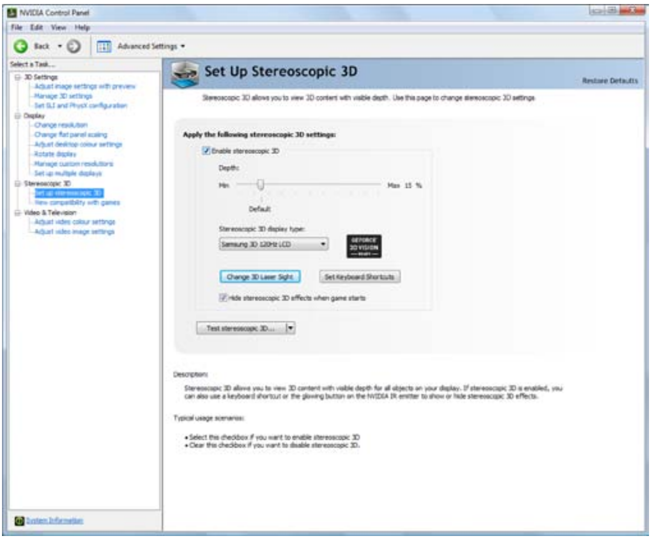
The NVIDIA Control Panel contains additional settings for 3D Vision. For information on the how to use the control panel, see ***NVIDIA 3D Vision Control Panel*** on page 25 of this manual.

04
NVIDIA CONTROL PANEL

NVIDIA has provided tools for you to customise your 3D Vision experience. To access the tool menus, go to the NVIDIA Control Panel.

Accessing the NVIDIA Control Panel

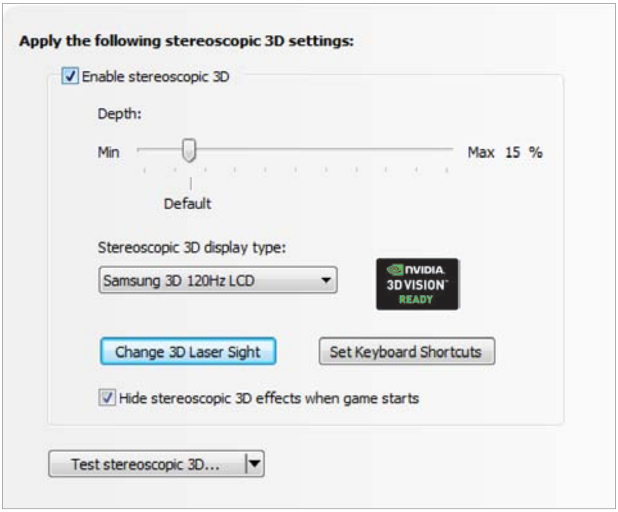
To open the **NVIDIA Control Panel**, right click on the desktop and select the NVIDIA Control Panel. You can also go to **Windows Control Panel → Hardware and Sound → NVIDIA Control Panel.**



Select **Stereoscopic 3D** from the topics in the left window pane. You may need to click on the **+** in front of **Stereoscopic 3D** to expand the topics.

Set Up Stereoscopic 3D

This section of the NVIDIA Control Panel provides all the adjustments needed to enhance your gaming experience. Each of the adjustments on this screen is discussed.



Enable Stereoscopic 3D

Note: Stereoscopic 3D effects work only with full-screen DirectX applications.

To enable stereoscopic 3D mode, check the box.



When this box is checked, it enables you to turn stereoscopic 3D effects on and off using the USB IR emitter ON button, pressing the notebook's 3D On/Off button, or by using the keyboard shortcut Ctrl-T. Leaving this enabled does not affect any other applications. However, leaving it enabled may reduce game performance when you are not using 3D Vision.

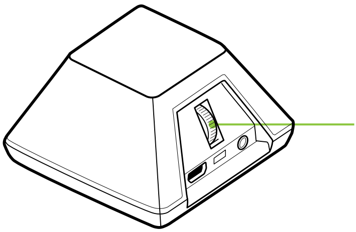
Adjusting the Depth

The depth amount in a game is the depth that the farthest object is placed in a scene. When 3D Vision is first installed on your system, the Depth is set at the default of 15%. If you are new to 3D gaming, 15% is a good point to start with. Viewing depth at a higher setting can be uncomfortable to some users. As you use 3D Vision, your eyes will become more accustomed to viewing stereoscopic 3D and you can incrementally increase the depth amount without eye strain.

On the *Set Up Stereoscopic 3D* screen, you adjust the depth amount by adjusting the slider to the desired amount. The depth setting on this slider indicates the depth amount for all games when they are launched.



You can also change the depth amount by adjusting the thumbwheel on the back of the IR emitter. Any adjustments you make on the thumbwheel is reflected on the **Depth** slider in the NVIDIA Control Panel.



Another way to change depth while in a game is to use the keyboard shortcut keys:

> **Note:** These are the default hotkeys used for 3D Vision glasses kits. If you have a 3D Vision notebook, there should be buttons on your keyboard for decreasing and increasing 3D depth.

- To decrease depth, use **Ctrl+F3** (default shortcut keys)
- To increase depth, use **Ctrl+F4** (default shortcut keys)

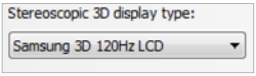
Any adjustments you make using keyboard shortcuts is

04

reflected on the **Depth** slider in the NVIDIA Control Panel.

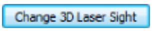
Stereoscopic 3D Display Type

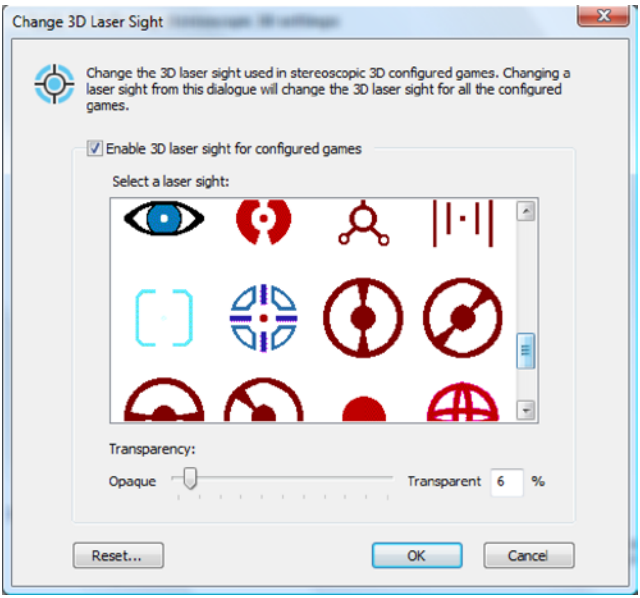
The **Stereoscopic 3D display type** is a drop-down list of all 3D Vision Ready displays that were found by the Setup Wizard. This list is populated by the Wizard. If you had more than one 3D Vision-Ready display attached during Setup, they will be reflected in the list.



Change 3D Laser Sight

The cross-hair sight in a first-person shooter (FPS) game is usually positioned at screen depth when viewed in stereoscopic 3D, making it difficult to aim. In some games, NVIDIA has created a configuration that puts the in-game laser sight at the correct depth. For those games, no user configuration is required. For all other FPS games, NVIDIA provides a selection of 3D laser sights that appear on the targeted object. The laser sights work in properly configured first-person shooter games with screen-centered sights.

To change the laser sight from the *Set Up Stereoscopic 3D* screen, click on the **Change 3D Laser Sight** button to display a list of possible laser sights. 



Different laser sights are displayed as you scroll down. To use your selected laser sight, check the **Enable laser sight for configured game** check box. If you would rather use the game's laser sight, uncheck the box.

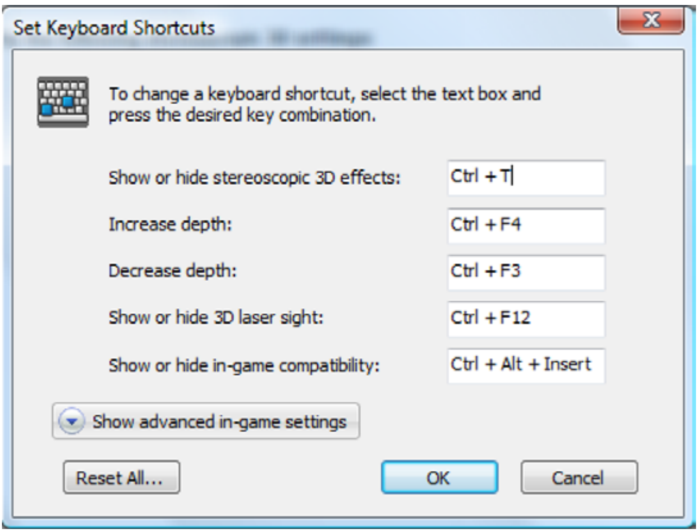
You can define the amount of transparency for the selected laser sight by using the **Transparency** slider. A setting of 0% is a solid laser sight and a setting of 100% is see-through. A recommended laser sight transparency is 25%. You can also use the keyboard shortcut keys, **Ctrl+F12** (default setting) to toggle the laser sight on and off while in a game.

The laser sight displays when stereoscopic 3D is turned on during a game. To avoid confusion, disable the aiming crosshair provided by the game whenever possible.

Set Keyboard Shortcuts

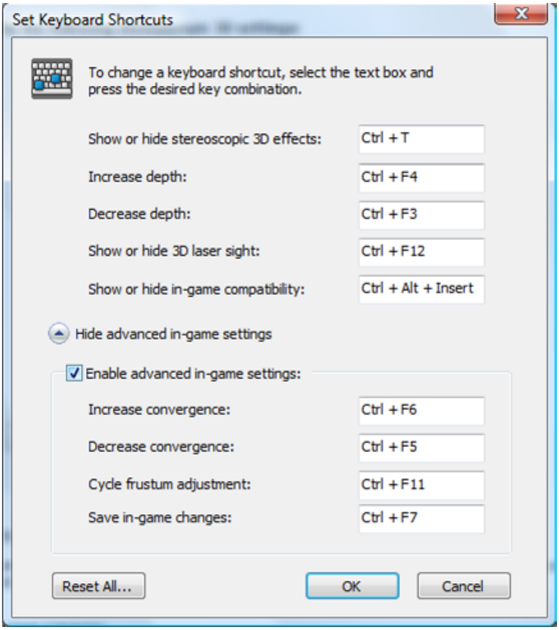
The keyboard shortcuts are in-game hot keys that can be used to perform a variety of actions.

To view or change the keyboard shortcut keys from the *Set Up Stereoscopic 3D* screen in the NVIDIA Control Panel, click on the **Set Keyboard Shortcuts** button. 



This expands the *Set Keyboard Shortcuts* screen.

To enable the use of *advanced* shortcut keys in-game, you must check the **Enable advanced in-game settings** check box.
The standard shortcut keys (shown in the upper portion of the window) are always enabled.



Shown with default values

To see the advanced in-game settings, click on

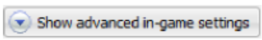


Table 1 on the following page lists all the shortcut key functions.

Table 1. Keyboard Shortcut Keys

Keys	Description	Action
Ctrl+T	Show/Hide stereoscopic 3D effects	Turns 3D Vision off and on.
Ctrl+F4	Increase depth	Increases the depth amount real-time in the current game. Change is reflected on the NVIDIA Control Panel.
Ctrl+F3	Decrease depth	Decreases the depth amount real-time in the current game. Change is reflected on the NVIDIA Control Panel
Ctrl+Alt+ Insert	Show/Hide in-game compatibility	Displays the settings recommended by NVIDIA for the current game in the lower corner of your display.
Ctrl+F6	Increase convergence	Moves objects towards you. Maximum convergence places all objects *in front of* the scene, in user space. Used to place the laser sight. (Advanced)
Ctrl+F5	Decrease convergence	Moves objects away from you. Minimum convergence places all objects "behind" the scene, in CRT space. Used to place the laser sight. (Advanced)
Ctrl+F11	Cycle frustum adjustment	Cycles between three different modes of displaying the 3D image in the viewer: Off, Stretch to fill, Clip sides. (Advanced)
Ctrl+F7	Save in-game settings	Saves the current game setting to the registers for later use. (Advanced)

(Advanced) To enable the use of *advanced* shortcut keys in-game, you must check the **Enable advanced in-game settings** check box on the *Set keyboard Shortcuts* screen.

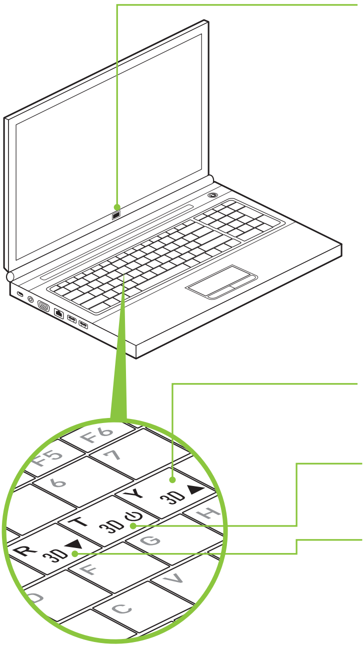
04

Hide Stereoscopic 3D Effects When Game Starts

There are some games that do not launch very well when stereoscopic 3D effects are enabled at startup. To avoid this, check the box on the *Set Up Stereoscopic 3D* screen in the NVIDIA Control Panel.



The stereoscopic 3D effects remain enabled, it is just hidden at startup. Once the game has loaded, you can show stereoscopic 3D effects by pressing the **Stereoscopic 3D ON/OFF** button on the USB IR emitter ON button, pressing the notebook's 3D On/Off button, or by using the keyboard shortcut Ctrl-T.

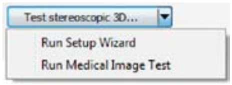


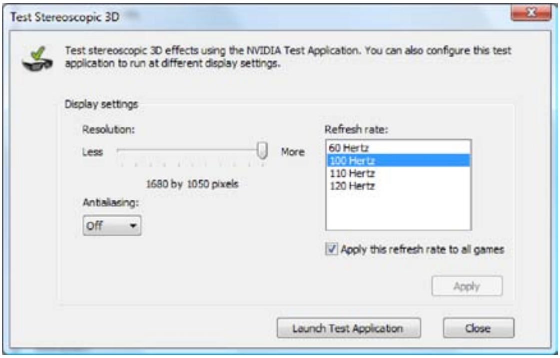
Test Stereoscopic 3D

The **Test Stereoscopic 3D** button and drop-down list on the *Set Up Stereoscopic 3D* screen in the NVIDIA Control Panel provides the ability to test stereoscopic 3D viewing and the ability to run the Setup Wizard and the Medical Image Test.

Test Stereoscopic 3D Option

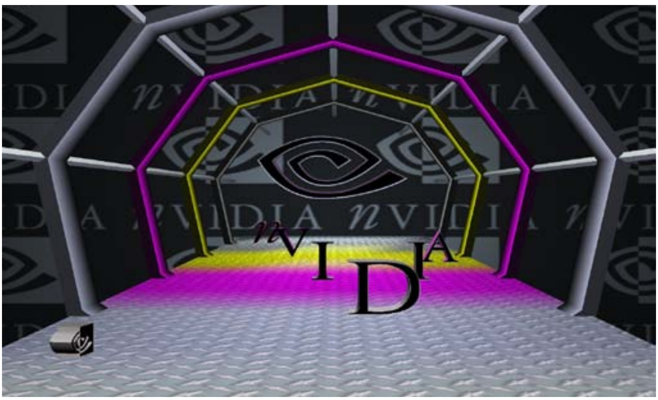
Clicking on the **Test Stereoscopic 3D...** button displays a test application that allows you to adjust stereoscopic 3D effects so that watching 3D Vision is comfortable to you.





Click **Launch Test Application** after you select the display settings.

The image displays in full-screen if you have the correct resolution set for you monitor. With your wireless glasses on, you are able to see in stereoscopic 3D. Use the shortcut keys and the depth wheel on the IR emitter to make adjustments.



Note: Any changes made using the shortcut keys or the IR emitter depth wheel is reflected on the *Set Up Stereoscopic 3D* screen..

When you have finished any adjustments, press the **Esc** key to exit the stereoscopic 3D test screen.

Run Setup Wizard Option

Clicking on the dropdown menu icon displays the **Run Setup Wizard** and **Run Medical Image Test** options. Selecting the **Run Setup Wizard** option launches the Wizard so that you can make changes to your configuration or add displays.

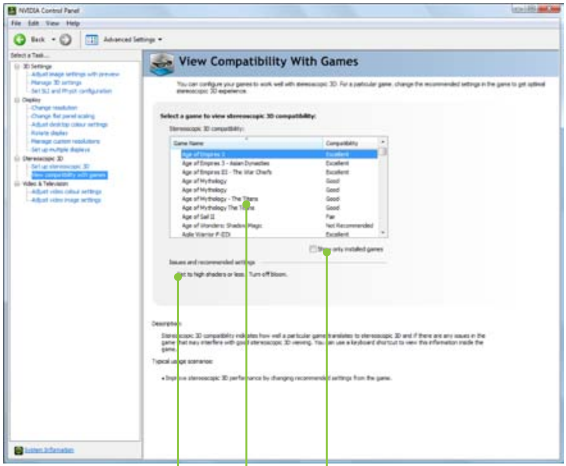
Run Medical Image Test Option

The Medical Test Image is run during the install Wizard (see Step 20 on page 22). However, you can run the test independent of the Wizard by selecting the **Run Medical Image Test** option.

! **Attention:** NVIDIA recommends that every new stereoscopic 3D user run the Medical Image Test to verify their ability to view stereoscopic 3D-rendered images. If you can not see the image, do not use 3D Vision (see step 20 on page 22).

View Compatibility With Games

NVIDIA has tested and provided profiles for many of the top selling games to ensure they work properly with 3D Vision. All games that have been tested are listed in the NVIDIA Control Panel with their compatibility rating. Each game has been rated with **Excellent, Good, Fair,** or **Not Recommended.** These ratings are based on how well the games play in stereoscopic 3D and if there are any issues in the game that may interfere with your 3D Vision experience.



Issues and settings recommended by NVIDIA as a result of testing.

Check this box to see only those games loaded on your system. Unchecked list all games tested by NVIDIA.

List of games tested by NVIDIA

If you have a game that is not on the list of those tested by NVIDIA, go to www.nvidia.com and consult the games that have been tested since the release of this version of software.

To see any issues and to view recommended setting that NVIDIA discovered when testing a game, select (highlight) a game in the list and see the instructions listed under **Issues and recommended settings**. To view a game in the best possible stereoscopic 3D, you must follow the recommended settings. Not following these settings could result in the game not running in stereoscopic 3D.

You can also use the shortcut keys **Ctrl+Alt+Insert** to display the recommended settings as an overlay on the opening screen of a game.

04

05
ADVANCED INFORMATION

The NVIDIA 3D Vision Driver takes certain 3D information contained in the game and uses it to generate the stereoscopic 3D display. Since most games are not designed with stereoscopic 3D in mind, the resulting display quality varies from game to game. In some cases, the game is not viewable at all in stereoscopic 3D without making adjustments based on observation.

Optimum stereoscopic 3D is achieved when the game display consists of the following:

- Meaningful range of depth, or distance between the nearest and farthest objects.
- Nearest objects which are not too close for comfortable viewing.
- Heads up displays (HUD) that are positioned so as not to interfere with the stereoscopic 3D experience. Ideally, HUDs should be at screen depth.

Preset Configurations

For most games, NVIDIA has established settings that adjust the display to achieve high quality stereoscopic 3D, based on the needs of each game.

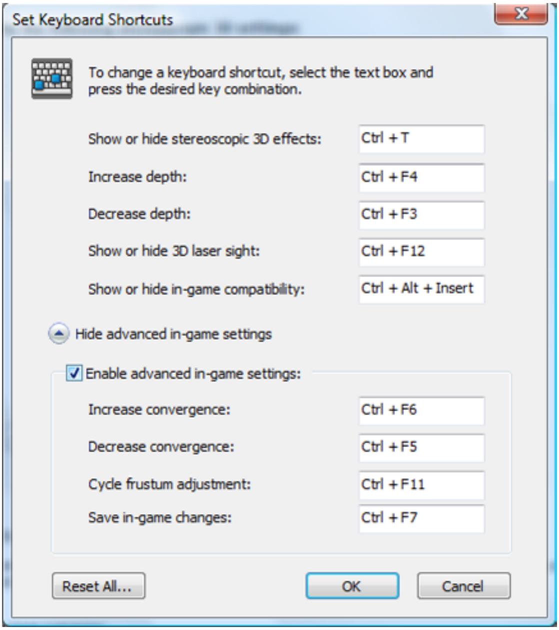
You can view the list of these games on the **View compatibility with games** task located on the NVIDIA Control Panel. This menu also shows a list of comments pertaining to that game. These comments may include suggested settings or adjustments and comments on the construction of the game. These instructions can also be overlaid on the opening screen of the game using **Ctrl+Alt+Insert**.

Be sure to view these comments before you begin your game.

Setting Your Own Shortcut Keys

To configure a game in real-time you must be familiar with the keyboard shortcut keys. You can use the default setting or you can change the shortcut keys to suit your particular liking.

To see the default keyboard shortcut key settings, go to the NVIDIA Control Panel and select the **Set up stereoscopic 3D** task in the left window pane. Click on the click on the **Set Keyboard Shortcuts** button.



Shown with default values

See Table 1 on page 31 for more information on the shortcuts.

To change a shortcut key combination, select an action and click in the adjacent box displaying the shortcut. Press your desired key combination. The keystrokes are displayed in the box. Click **OK** to save your settings and exit the menu. The driver saves the settings in the registry.

Game Configuration Guidelines

The following table lists some adjustment guidelines to use for specific issues when you are in a game.

Table 2. Game Configuration Guidelines

Issue	Suggestion
Object are too close	Decrease Convergence [**Ctrl+F5**]
Side borders are blurred, not clear, not visible	Cycle frustum adjustments until borders are clear [**Ctrl+F11**]
Convergence settings not good for all parts of the game	Increase/decrease convergence [**Ctrl+F6**/ **Ctrl+F5**]
Stereoscopic 3D unclear, not sure what needs to be adjusted	See *Tips and Troubleshooting* on page 39

Once you are happy with the way the game looks in stereoscopic 3D, press **Ctrl-F7** to save these settings to the register. The settings are associated with this game only (based on the name of the game executable file).

Viewing Practices

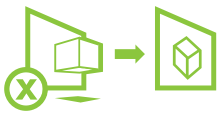
- **Depth Amount:** The recommended starting point for Depth Amount is 15%, but always adjust the depth to a comfortable level. You can increase it over time as your eyes get used to stereoscopic 3D viewing.
- **Viewing Distance**: Maintain a distance no closer than 2 to 2.5 feet away from the monitor. Viewing from too close a distance can cause too much strain on your eyes, and can reduce stereoscopic quality.
- **Viewing Angle**: Keep your eyes parallel to the screen. The imaginary line connecting your eyes should be parallel to the horizontal level of the screen. The stereoscopic 3D effect is based on side-to-side or horizontal—displacement of each image. If you tilt your head, your eyes no longer see the displacement as horizontal, and the stereoscopic 3D effect is diminished or even eliminated. While your brain may adjust to this viewing, it must work harder, resulting in eye strain and fatigue.

- **Viewing Time**: Take regular breaks. As with any time spent looking at a computer screen, it is good practice to give your eyes a rest after a period of time. At a minimum, rest for five (5) minutes after every hour of stereoscopic 3D viewing.
- **Viewing with Prescription Glasses**: If you normally wear glasses when viewing a computer screen, keep them on and put the wireless glasses over your eye wear. The sharper the image on the screen, the better the quality.
- **Game Cursor/Cross-hair Sights**: If you are using the NVIDIA 3D laser sights, be sure to turn off the sight that the game provides. The game sight is usually positioned at screen-depth, and interferes with useful viewing of the NVIDIA laser sight.
- **Display Lighting**: The amount of light reaching each eye is cut in half, and causes the screen to appear darker under stereoscopic 3D viewing. Adjusting the brightness and contrast settings of your game can also reduce screen persistence and improve stereoscopic 3D quality.
- **Ambient Lighting**: The intensity of surrounding lighting can affect stereoscopic 3D quality and comfort. Lighting conditions that improve stereoscopic 3D viewing vary from one person to the next, so experiment with brighter or darker room lighting to find what works best for you. See *Tips and Troubleshooting* on page 39.

Note: High intensity lighting (especially halogen lighting) can interfere with IR communication (between the wireless glasses and the IR emitter) resulting in some flicker.

06
TIPS AND TROUBLESHOOTING

NVIDIA provides an online knowledgebase system with answers to most common questions available 24x7x365. You can also use it to submit questions online to our technical support staff.
Please visit www.nvidia.com/3dvision/support for more details. Questions may only be submitted in English. 3D Vision customers also have access to toll free technical at 1-800-797-6530 between the hours of 8:00 AM and 5:00 PM Pacific Time M-F.
NVIDIA recommends you register your wireless glasses for support at www.nvidia.com/3dvision/register. The technical support line is accessible from the U.S. and Canada only.



3D Vision is not Working

- **Make sure you have activated the IR emitter.** Press the green **ON/OFF** button on the front of the emitter. The emitter is on when the button is *bright* green.
- **Check and make sure that stereoscopic 3D is enabled.** Go to the NVIDIA Control Panel *Set Up Stereoscopic 3D* screen.
- **Re-evaluate your setup.** Ensure there is direct line-of-sight between the IR emitter and your wireless glasses at a range of at least 1.5 feet (45cm) or greater. Any obstructions may cause the glasses not to function properly causing the lenses to flicker or turn off.

Do not place objects too close or in front of the emitter which could block the signal (e.g. keyboard, coffee mug, etc.). Also, make sure not to place your hand or other objects in front the of the IR receiver on the glasses; located near the front left lens.

> Run the Setup Wizard to verify your hardware is operating properly. Go to the NVIDIA Control Panel (right click on the desktop). Select **Set Up 3D Vision**. Then select **Run Setup Wizard** from **Test Stereoscopic 3D** drop down menu.

> **Ensure your wireless glasses are fully charged.**
You can check the battery level of your glasses by pressing the **ON** button.

- If the light next to the button is green, you have up to 40 hours of battery life remaining. Actual battery life is dependent on the recharge time.
- If the light is red, you have less than two hours remaining and it is recommended that you recharged your glasses.
- If the light does not turn on, the battery is drained and the glasses must be recharged.

If you are charging the wireless glasses by connecting them to your PC using a USB cable, make sure your PC does not go into power save mode. When your PC goes into power save mode, the wireless glasses are no longer charging. To fix this, disable any power saving options on your PC under the Windows Control Panel. Alternatively, you can use a USB wall charging device to charge the glasses directly from your wall power outlet without connecting to the PC.

> **Make sure you have used the DVI cable that was shipped with your 3D Ready 120Hz LCD display**. This is a dual-link cable and 3D Vision will not operate without it.

Note: This requirement is not for notebook PCs with built-in 3D Vision LCD panels.

Image is not Clear

Your Eyes are not Adjusted

Your eyes may take some time to adjust to viewing stereoscopic 3D effects. If you are new to gaming, make sure you start your depth amount at the default of 15%. As your eyes adjust, you can increase the depth amount.

Depth Needs Adjusting

Adjust depth amount using the slider on the NVIDIA Control Panel *Setup* screen. If you are in a game, use the thumb wheel on the back of the IR emitter or the shortcut keys **Ctrl+F3** to decrease depth and **Ctrl+F4** to increase depth.

Game is not Configured Properly

If your game is not functioning in stereoscopic 3D, look at the list of compatible games shown on the NVIDIA Control Panel *View Compatibility with Games* screen.

Verify that your game has been tested by NVIDIA and has been ranked as **3D Vision-Ready, Excellent, Good**, or **Fair**. Check out the **Issues and recommended settings** listed at the bottom of the screen. Make any adjustments recommended by NVIDIA to make your gaming experience better.

If it has a **Not Recommended** rating, it means that the game does not show in stereoscopic 3D or it shows very poorly.

Make sure you are running your game in resolutions that support 3D Vision. In order to support 3D Vision, your game must be configured to run at the correct settings for your display.

Game is not in Fullscreen Mode

3D Vision currently only supports full screen applications and cannot run in windowed mode. Be sure to select full screen mode from in-game settings.

Excessive Flickering

Flicker in your peripheral vision can be caused by differences in frequencies at which 3D Vision operates and the lighting in your room. This type of flicker can be avoided by turning off the lights or changing the stereoscopic 3D refresh rate. To see the refresh rates, run the Setup Wizard from the NVIDIA Control Panel. When you get to the page asking about flicker, select **Yes**. You can then select from the following refresh rates:

- 120 Hz refresh rate for use in North America when lights are on
- 110 Hz refresh rate for daytime and when lights are off
- 100 Hz refresh rate for countries with 50 Hz lighting and when lights are on

Once you have selected a refresh rate on the *Setup Wizard* screen, click the **Test with this refresh rate** button to verify the new refresh rate helps to reduce flicker. Once you have found the best setting, select **Next** to continue (see step 17 on page 18 for the procedure on how to reset the refresh rate).

Eyestrain/Headache

If you are experiencing eyestrain or headaches, it could be due to excessive depth amount. Change the depth in one of the following ways:

> In-game adjustment, use the shortcut keys **Ctrl+F3** to decrease the depth amount.

> Use the thumb wheel on the back of the IR emitter to adjust the depth amount. If you are new to gaming, start at the default 15%.

> Use your mouse to adjust depth amount on the slider in the NVIDIA Control Panel *Set Up Stereoscopic 3D* screen.

If you are new to gaming, start at the default (15%).

! Warning: If eyestrain and headaches persist, discontinue viewing in stereoscopic 3D and consult a doctor.

No Laser Sight

Laser Sight is not Enabled

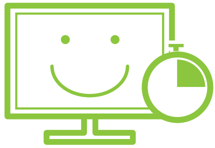
If you do not see the laser sight in a game, the laser sight may not be enabled. Go to the NVIDIA Control Panel *Set Up Stereoscopic 3D* screen and click on the **Change 3D laser Sight** button to display the *Change 3D Laser Sight* screen. Make sure the **Enable 3D laser sight for configured games** is checked (see *Change 3D Laser Sight* on page 28).



Transparency Set too High

Go to the NVIDIA Control Panel *Set Up Stereoscopic 3D* screen and click on the **Change 3D laser Sight** button. Adjust the **Transparency** slider to adjust the transparency of the laser sight.

Allow your 120 Hz LCD to Warm Up



For optimal stereoscopic 3D image quality, when using a pure 120 Hz LCD, please allow your monitor to warm up. This warm-up period is normal behavior for LCD monitors.

Note: Please visit www.nvidia.com/3dvision/support to access our 24x7x365 online knowledgebase system, where you can submit questions to our tech support staff. Questions may only be submitted in English. 3D Vision customers also have access to toll free technical support at **1-800-797-6530** from 8:00AM-5:00PM Pacific Time, M-F. The technical support line is accessible from the U.S. and Canada only.

07

08
COMPLIANCE AND CERTIFICATIONS

The NVIDIA 3D Vision systems are compliant with the relevant regulations and have received the required certifications:

- Australian Communications Authority (C-Tick)
- Bureau of Standards, Metrology, and Inspection (BSMI)
- Conformité Européenne (CE)
- Federal Communications Commission (FCC)
- Industry Canada (IC)
- Korea Certification(KC)
- Russian System GOST R(GOST-R)
- Underwriters Laboratories (UL/cUL, CB Scheme)
- Voluntary Control Council for Interference (VCCI)

NVIDIA 3D Vision System products include the following models:

- Model: P701 (5V DC operated IR emitter and battery operated wireless glasses)
- Model: P854 (5V DC operated IR emitter and battery operated wireless glasses)
- Model: P864 (5V DC wired glasses)

08

US Federal Communications Commission Compliance

FCC – Federal Communications Commission

Title 47 of Code of Federal Regulation (CFR) part 15 - Radio frequency devices; Subpart B - Unintentional Radiator (FCC Part 15B:2008)

! **CAUTION:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canada Compliance

Industry Canada

ICES-003:2004 - Digital Apparatus: Spectrum Management and Telecommunications Policy; Interference-Causing Equipment Standard.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Compliance

C-Tick: The Australian Communications Authority (ACA) and the Radio Spectrum Management Group (RSM) of New Zealand

AS/NZS CISPR 22:2009 Standard - Information technology equipment-Radio disturbance characteristics-limit and methods of measurement.

Japan Compliance

VCCI: Voluntary Control Council for Interference by Information Technology Equipment

- V-1/09.04: Agreement of Voluntary Control Council for Interference by Information Technology Equipment.
- V-2/09.04: Rules for Voluntary Control Measures.
- V-3/09.04: Normative Annex 1 Technical Requirements.
- V-4/09.04: Normative Annex 1-1 Supplementary Test Conditions for Equipment under Test.

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスB 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

08

Korea Compliance

MIC - Ministry of Information and Communications
KCC - Korea Communication Commission
KC - Korea Certification

> KN 22 (CISPR 22): Information technology equipment-Radio disturbance characteristics - limit and methods of measurement.

> KN 24 (CISPR 24): Information technology equipment - immunity characteristics-limit and methods of measurement.

B급기기(가정용 방송통신기기)
이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

"Class B" Equipment (Household purpose info/telecommunications equipment)

As this equipment has undergone EMC registration for household purpose, this product can be used in any area including residential area.

Taiwan Compliance

BSMI - Bureau of Standards, Metrology and Inspection

CNS 13438:2006 (CISPR 22): Information technology equipment-Radio disturbance characteristics-limit and methods of measurement.

European Union Compliance

CE: European Conformity (Conformité Européenne)

Product comply with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms

(The equivalent international standards are in parenthesis)

- EN 55022:2006+A1:2007 (CISPR 22)Information technology equipment-Radio disturbance characteristics -limit and methods of measurement.
- EN 55024:1998+A1:2001+A2:2003 (IEC 61000-4-2, 3, 4, 5, 6, 8, 11): Information technology equipment - immunity characteristics-limit and methods of measurement.
- EN 61000-3-2:2006 (IEC 61000-3-2): Electromagnetic compatibility (EMC)-Part 3-2: Limits-Limits for harmonic current emissions (equipment input current ≤16 A per phase).
- EN 61000-3-3:2008 (IEC 61000-3-3): Electromagnetic compatibility (EMC)-Part 3-3: Limits-Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection).

Russia Federal Compliance

GOST-R Certification System GOST-R

- GOST R IEC 60950-1: Information technology equipment – Safety –Part 1: General Requirement.
- GOST R 51318.22-99: Information technology equipment – Radio disturbance characteristics - limit and methods of measurement.
- GOST R 51318.24-99(IEC 61000-4-2, 3, 4, 5, 6, 8, 11): Information technology equipment – immunity characteristics - limit and methods of measurement.
- GOST R 51317.3.2-2006(passage 6 and 7) (IEC 61000-3-2): Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16A per phase).

- GOST R 51317.3.3-99(IEC 61000-3-3): Electromagnetic compatibility(EMC)- Part 3-3: Limits-Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16A per phase and not subject to conditional connection).

Underwriters Laboratories (UL/cUL, CB Scheme)

UL– Underwriters Laboratories

- UL 60950-1, 2nd Edition, 2007-03-27: Information technology equipment - Safety - Part 1: General requirement.
- CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03: Information Technology equipment - Safety - Part1: General requirement.
- IEC 60950-1:2005 (Second Edition): Information technology equipment – Safety – Part 1: General requirement.

Use with UL Listed I.T.E. only

09
IMPORTANT SAFETY INFORMATION

NVIDIA products are designed to operate safely when installed and used according to the product instructions and general safety practices. The guidelines included in this document explain the potential risks associated with computer operation and provide important safety practices designed to minimize these risks.
By carefully following the information contained in this document and the specific instructions provided with your product, you can protect yourself from hazards and create a safer computer work environment.

The product is designed and tested to meet IEC-60950-1, the Standard for the Safety of Information Technology Equipment. This also covers the national implementation of IEC-60950-1 based safety standards around the world e.g. UL-60950-1. These standards reduce the risk of injury from the following hazards:

> **Electric shock:** Hazardous voltage levels contained in parts of the product.

> **Fire:** Overload, temperature, material flammability.

> **Mechanical:** Sharp edges, moving parts, instability.

> **Energy:** Circuits with high energy levels (240 volt amperes) or potential as burn hazards.

> **Heat:** Accessible parts of the product at high temperatures.

> **Chemical:** Chemical fumes and vapors.

> **Radiation:** Noise, ionising, laser, ultrasonic waves.

Retain and follow all product safety and operating instructions.

09

Always refer to the documentation supplied with your equipment. Observe all warnings on the product and in the operating instructions.

WARNING: Failure to follow these safety instructions could result in fire, electric shock or other injury or damage.

WARNING: Electrical equipment can be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.

Safety Symbols

To reduce the risk of bodily injury, electric shock, fire, and damage to the equipment, observe the safety labels included on the equipment.

Symbols on Equipment

Sign	Meaning
	This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your docu¬mentation for specific details.
	This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel. WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.
	This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason. WARNING: To reduce risk of injury from electric shock hazards, do not open this enclosure.

General Precautions

To reduce the risk of personal injury or damage to the equipment:

- Follow all cautions and instructions marked on the equipment. Do not attempt to defeat safety interlocks (where provided).
- Do not bend, drop, crush, puncture, incinerate, or open glasses or IR emitter.
- Do not perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Place the product away from radiators, heat registers, stoves, amplifiers, or other products that produce heat.
- Take care NOT to spill any food or liquid onto the glasses or IR emitter. In the event that the parts do get wet, unplug all cables before cleaning. Allow the equipment to dry thoroughly before turning it on again.
- Never force a connector into a port. Check for obstructions on the port.
- Avoid inserting foreign objects through openings in the product.
- Do not insert foreign objects through openings in the product.
- Do not make mechanical or electrical modifications to the equipment.
- To clean the glasses, use a soft, slightly damp, lint free cloth. Avoid getting moisture in openings. Do not use window cleaners, household cleaners, aerosol sprays, solvents, alcohol, ammonia, or abrasives to clean glasses.
- If the product sustains damage requiring service, disconnect the product from the computer or USB charging adapter and refer servicing to an NVIDIA authorized service provider.
- As with any electronic equipment, dispose of glasses and IR emitter properly.
- When the IR emitter is operating, it is normal for it to be warm to the touch. When charging the wireless glasses, the battery compartment may feel warm.

09

- If you use a USB power adapter to charge the wireless glasses, read the specifications carefully. Make sure the power adapter is USB compliant.
- There is a lithium battery in your wireless glasses. You can recharge the battery whenever it is convenient. Like all lithium batteries, it will slowly age. After a while it will lose the capability to be charged to it's full capacity. The degradation is slow and will vary depending on your use and recharging habits.
- Operating and storing the glasses outside the recommended temperature range can lead to temporary or even permanent damage to the battery of wireless glasses and lenses of glasses.
- Do not disassemble your glasses or the emitter box under any circumstances. Do not remove the battery from the wireless glasses or any parts in the glasses or IR emitter. You run the risk of electric shock and voiding the warranty.

> ! **WARNING: Your wireless 3D glasses contain sensitive components including a rechargeable battery. Prevent damage by making sure you do not drop, bend, or crush your stereo glasses or drop into fire.**

> ! **WARNING: The lithium ion battery in the wireless 3D Glasses are a custom design. Do NOT attempt to open the battery compartment or replace the battery. Contact NVIDIA or an NVIDIA approved service provider if you suspect your battery is faulty.**

Ambient Temperatures

- **Operating temperature:** Recommended range is 5C to 40C (41F to 104F).
- **Storage temperature:** The recommended storage temperature range is -10C to 45C(14F to 113F). Do not leave 3D Vision System in your car, because temperatures in parked cars can exceed this range.

Infrared device safety

Class 1 LED Product

The IR Wireless Emitter includes Infrared light - emitting diodes for transmitting signals from the IR Wireless Emitter to the wireless

glasses. Although this invisible beam is not considered harmful, and complies with EN60825-1 (IEC60825-1), we recommend the following precaution: when the Infrared device is transmitting:

- Do not stare into the Infrared beam
- Do not view directly with optical instruments

No parts in the device may be serviced by the user.

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